UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,673	09/20/2006	Juha Paaso	3003-00052	2854

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EXAMINER
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ART UNIT	PAPER NUMBER
2628	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
	10/593,673	PAASO, JUHA
Office Action Summary	Examiner	Art Unit	
	ABDERRAHIM MEROUAN	2628	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>20 September 2006</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-13</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-13</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>20 September 2006</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All b)☐ Some * c)☐ None of:

        1.☒ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
        application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1.   35 U.S.C. 101 reads as follows:

   Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new
   and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2.   Claims 9-12 are rejected under 35 U. S. C. 101 because the claimed invention is directed

to non-statutory subject matter as follows:

Claims 9-12 fail to fall within a statutory category of invention. It is directed to the program

itself, not a process occurring as a result or executing the program, a machine programmed to

operate in accordance with the program nor a manufacture structurally and functionally

interconnected with the program in a manner which enables the program to act as a computer

component and realize its functional interconnected clearly not directed to a composition of

matter. Therefore, it's non-statutory under 35 USC 101.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
obviousness rejections set forth in this Office action:

   (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
   section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
   such that the subject matter as a whole would have been obvious at the time the invention was made to a person
   having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
   manner in which the invention was made.

4.   Claims 1-3, 5-7, 9-11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable

over MacPherson (US-PGPUB 20020184245 A1) Hereinafter referred as MacPherson, in view

of Mao (US-Patent 6307558 B1), hereinafter Mao

5.   As per claim 1 MacPherson discloses: A method for processing a computer aided

polygon model, comprising:

forming a vertex array which is linear and static and comprises the vertices of the image

elements of the polygon model (MacPherson, Paragraph[0015], lines 1 to 3);

forming an index array which is linear and the elements of which determine the image elements

of the polygon model by pointing at the vertices of the image elements in the vertex

array(MacPherson, Paragraph[0018], lines 1 to 6), and which index array comprises an active

part, the image elements determined by the elements of the active part being included in the

polygon model part to be presented graphically(MacPherson, Paragraph[0019], lines 1 to 9)

MacPherson doesn't teach:

forming additionally a hierarchical data structure whose hierarchy is based on the division of the

vertices in the image space, the nodes of which hierarchical data structure point at nodes of a

lower level in the hierarchy, the leaf nodes of the hierarchical data structure pointing at elements

of the active part of the index array; and reducing the polygon model part to be presented

graphically by means of the hierarchical data structure, maintaining the linearity of the index

array. However, Mao discloses: forming additionally a hierarchical data structure whose

hierarchy is based on the division of the vertices in the image space, the nodes of which

hierarchical data structure point at nodes of a lower level in the hierarchy, the leaf nodes of the

hierarchical data structure pointing at elements of the active part of the index array (Mao,

Column 3, lines 5 to 23); and reducing the polygon model part to be presented graphically by means of the hierarchical data structure, maintaining the linearity of the index array (Mao, Column 3, lines 24 to 48).

It would have been obvious to one skilled in the art, at the time of the Applicant's invention, to incorporate the teachings of Mao into the process taught by MacPherson, because through such incorporation would provide an efficient data storage.

6.   As per claim 2 MacPherson disclose: A method according to claim 1, wherein reducing the polygon model comprises:

including the location information representing the vertices pointed at by the index array elements pointed at by said at least two leaf nodes in a node of an upper level in the hierarchy, whereby this upper level node becomes a leaf node; and (MacPherson, Paragraph [0028], lines 1 to 6) removing at least one element of the index array pointed at by said at least two hierarchically equal leaf nodes from the active part. (MacPherson, Paragraph [0020], lines 1 to 6) MacPherson doesn't disclose: removing at least two hierarchically equal leaf nodes from the hierarchical data structure. However, Mao discloses: removing at least two hierarchically equal leaf nodes from the hierarchical data structure (Mao, Column 12, lines 26 to 32).

7.   As per claim 3 MacPherson discloses: A method , further comprising forming an index array in such a way that the index array also comprises a passive part, the vertices pointed at by the elements of the passive part belonging outside the polygon model part to be presented graphically; and (MacPherson, Paragraph[0022], lines 1 to 8) reducing the polygon model part

by moving at least one index array element from the active part to the passive part. (MacPherson,

Paragraph [0025], lines 1 to 7)

8. Arguments used to reject 5 are analogous to argument used to reject claim 1

9. Arguments used to reject 6 are analogous to argument used to reject claim 2

10. Arguments used to reject 7 are analogous to argument used to reject claim 3

11. Arguments used to reject 9 are analogous to argument used to reject claim 1

12. Arguments used to reject 10 are analogous to argument used to reject claim 2

13. Arguments used to reject 11 are analogous to argument used to reject claim 3

14.   As per claim13, MacPherson discloses: A distribution medium readable by computer,

wherein the distribution medium embodies the computer program of claim 9. (MacPherson,

Paragraph [0032], lines 1 and 2)

15.   Claims 4, 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over

MacPherson (US-PGPUB 20020184245 A1) Hereinafter referred as MacPherson, in view of

Mao (US-Patent 6307558 B1), hereinafter Mao, as applied to claim 1 above, and further in view

of Pentkovski et al. (US-PGPUB 20020008698 A1), hereinafter Pentkovski

16.   As per claim 4 MacPherson discloses: A method according to claim 1. wherein forming a

hierarchical data structure comprises:

MacPherson doesn't disclose: dividing the coordinate space represented by the polygon model

into hierarchical sectors on the basis of vertices contained in the vertex array;

including the pointers of the nodes corresponding to the sectors of the next lowest level in the

hierarchy in the node corresponding to each hierarchical sector;

including the pointers pointing at the index array elements pointing at the vertices determining

the lowest hierarchical sector in the leaf nodes. However, Pentkovski discloses: dividing the

coordinate space represented by the polygon model into hierarchical sectors on the basis of

vertices contained in the vertex array; (Pentkovski, Paragraph[0043], lines 1 to 6) including the

pointers of the nodes corresponding to the sectors of the next lowest level in the hierarchy in the

node corresponding to each hierarchical sector; (Pentkovski, Paragraph[0044], lines 1 to 4)

including the pointers pointing at the index array elements pointing at the vertices determining

the lowest hierarchical sector in the leaf nodes. (Pentkovski, Paragraph [0045], lines 1 to 4)

It would have been obvious to one skilled in the art, at the time of the Applicant's invention, to

incorporate the teachings of Pentkovski into the process taught by MacPherson in view of Mao,

because through such incorporation would provide an easy management of image elements

storage.

17.   Arguments used to reject 8 are analogous to argument used to reject claim 4.

18.   Arguments used to reject 12 are analogous to argument used to reject claim 4.

Response to Arguments

19.   Applicant's arguments with respect to claims 1-13 have been considered but are moot in

view of the new ground(s) of rejection.

20.   Applicant's arguments directed to claims 1-13 have been fully considered but they are

not persuasive.

21.   In response to the applicants amended claims. These amended claims and the new added

claim remain rejected I view of the new ground of rejection.

Conclusion

22.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to ABDERRAHIM MEROUAN whose telephone number is

(571)270-5254. The examiner can normally be reached on Monday to Friday 7:30 AM to 5:00

PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xiao

Wu can be reached on (571) 272-7761. The fax phone number for the organization where this

application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application

Information Retrieval (PAIR) system. Status information for published applications may be

obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Abderrahim Merouan/

Examiner, Art Unit 2628

/XIAO M. WU/

Supervisory Patent Examiner, Art Unit 2628